Referee Report on "Fiscal Monetary Services and Inflation"

1 Summary

The author has done a careful revision of the paper in the direction of responding to my original main concern about the lack of a complete theoretical model with both monetary and fiscal policies. The new paper is much improved. Along with this progress, I want to make two additional comments. First, there was an error in my previous report, which might have misguided the author in the revision. This is entirely my fault. I have highlighted the corrections in the red color text of the current report. Second, I am puzzled by the *inflationary* response due to an increase in the monetary services of the theoretical model (Section 7.1).

2 Remaining Comments

To make the discussion concrete, I solved an endowment version of the model laid out in my previous report, which yields a closed-form solution for illustrating the mechanism at work.

2.1 The Model

The household's optimizing behavior implies a demand curve

$$(1-\theta)(\hat{b}_t - \epsilon_t^b) = \theta(\hat{R}_t - \mathbb{E}_t\hat{\pi}_{t+1}) \tag{1}$$

linking the real debt $\hat{b}_t$ to the real rate $\hat{r}_t = \hat{R}_t - \mathbb{E}_t\hat{\pi}_{t+1}$, where ϵ_t^b is a bond preference shock (i.e., ϵ_t^s in the author's notation). The monetary authority reacts to inflation

$$\hat{R}_t = \alpha\hat{\pi}_t + \epsilon_t^R \tag{2}$$

where $\alpha \geq 0$ and ϵ_t^R is a monetary policy shock. In addition, the fiscal authority responds to lagged debt

$$\hat{s}_t = \gamma\hat{b}_{t-1} + \epsilon_t^s \tag{3}$$

where ϵ_t^s is a fiscal policy shock. Cautions are needed when interpreting (3): when the steady-state budget is positive (i.e., $s > 0$ if $\theta > \beta$), $\hat{s}_t$ refers to the percent deviation in surplus and $\gamma \geq 0$; otherwise, $\hat{s}_t$ represents the percent deviation in deficit and $\gamma \leq 0$. Lastly, the government budget constraint is linearized as

$$\hat{b}_t = (\theta/\beta)(\hat{b}_{t-1} + \hat{R}_{t-1} - \hat{\pi}_t) - (\theta/\beta - 1)\hat{s}_t \tag{4}$$

where the real value of outstanding debt at the beginning of period t, $\hat{b}_{t-1} + \hat{R}_{t-1} - \hat{\pi}_t$, is determined in equilibrium at time t.

2.2 Impulse Responses

The model is solved under passive monetary policy ($\alpha \in [0, 1)$) and active fiscal policy ($\gamma = 0$). It can be shown that inflation follows

$$\hat{\pi}_t = \sum_{k=1}^{\infty} \underbrace{\alpha^{k-1}}_{\geq 0} \epsilon^R_{t-k} + \sum_{k=0}^{\infty} \underbrace{-|\beta/\theta - 1|\alpha^k}_{\leq 0} \epsilon^s_{t-k} + \underbrace{(\theta - 1)(\beta/\theta)}_{\leq 0} \epsilon^b_t + \sum_{k=1}^{\infty} (\theta - 1)(\alpha\beta/\theta - 1)\alpha^{k-1} \epsilon^b_{t-k}. \tag{5}$$

A typical FTPL result says that an increase in government debt will generate a positive wealth effect which in turn transmits into higher inflation. A higher inflation is also needed to revalue the nominal government debt so as to ensure its sustainability. This result extends to the case when government debt also provides safety and liquidity services, though the resulting fiscal inflation will now depend on the household's preference for bonds, i.e., the value of θ. Moreover, contrary to *inflationary* response in the theoretical model of Section 7.1, an increase in the monetary services (i.e., a positive realization of ϵ^b_t) is *deflationary* in this model, which is at odds with the empirical findings in the paper. The economics interpretation of this result is straightforward. A shift in the risk appetite towards safety and liquidity induces investors to happily hold onto more Treasuries. As such the aggregate demand for goods decreases and hence inflation falls as in (5). It would be helpful for the author to clarify these points in the next revision of the paper.